DOCUMENT RESUME

ED 465 315 HE 034 951

TITLE	Higher Education in Texas: 2000 Status Report.
INSTITUTION	Texas State Higher Education Coordinating Board, Austin.
PUB DATE	2001-03-00
NOTE	23p.; For the 1994 status report, see ED 368 309.
AVAILABLE FROM	For full text: http://www.thecb.state.tx.us.
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	*Access to Education; Educational Finance; Educational Planning; *Educational Quality; *Enrollment Trends; *Financial Support; *Higher Education; *Research; Status
IDENTIFIERS	*Texas; Texas Higher Education Coordinating Board

ABSTRACT

This report on the status of higher education in Texas covers enrollment trends, quality and access, research, campus planning, funding, and Texas Higher Education Coordinating Board activities. The first section, Participation and Success, looks at enrollment and participation trends and factors affecting participation in higher education. The second section, Meeting Workforce Needs, discusses the demands of the economy for workers in various areas and the efforts Texas is making to meet labor force requirements. The third section, Funding, describes the allocation of the $12.5 billion all funds appropriation for higher education and other sources of funds. New Trends in the Delivery of Higher Education, the fourth section, discusses supply and demand pathways and the increasing role of distance education. The final section, Statewide Planning Efforts, describes the new plan adopted by the Coordinating Board for Higher Education to bring Texas higher education into the new century. (Contains 10 tables.) (SLD)

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Higher Education in Texas: 2000 Status Report

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March 2001

Texas Higher Education Coordinating Board
P.O. Box 12788
Austin, Texas 78711-2788
(512) 427-6111
www.thecb.state.tx.us

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Introduction

Higher Education in Texas: 2000 Status Report provides data and information on several of the most fundamental long-term trends affecting and describing the state of Texas higher education.

This report, published by the Texas Higher Education Coordinating Board, is the most recent edition of a series of biennial status reports developed to meet requirements of the Texas Education Code, which mandates that the Board report periodically to the Texas Legislature on the state of higher education in Texas. While the Legislature is the primary audience for this report, the higher education community and the general public may also find it informative and useful.

Participation and Success

Participation, or enrollment, in higher education, as well as subsequent student success in meeting educational goals, are the most basic and essential measures for understanding the effectiveness of our colleges and universities in today's world.

For Texas to continue and enhance its 20th century success in the 21st century, it must ensure that all of its people have real opportunities to participate in higher education, and that they also have real opportunities to succeed in higher education to the highest levels possible.

Fortunately, the state's colleges and universities are enrolling more students every year. But challenges remain. In particular, some of the state's largest and most rapidly growing minority groups continue to be underrepresented in Texas higher education.

If Texas does not do a better job of educating all of its people, the state's future will be threatened as it reckons with a largely underskilled and undereducated work force, unable to attract and retain high-skill, high-wage jobs. Without those good jobs, statewide personal income will decrease while the demand for governmental social services will increase – forcing all Texans to pay the consequences through higher taxes or less effective services.

Education also plays a vital role in preserving and enhancing quality of life. For example, it gives people a broader base from which to make decisions. Education also helps people better understand all of the challenges and opportunities that modern life gives us – both personally, in areas like personal finance and parenting, and publicly, in things like voting and community service.

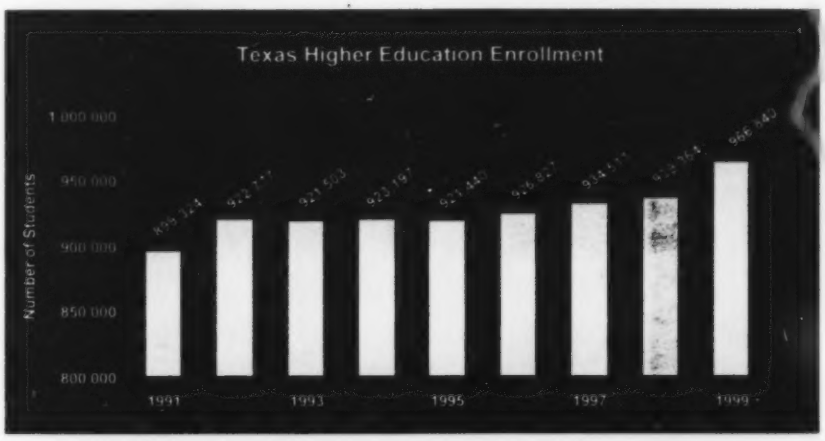
➨ Enrollment

Overall, enrollment in all of Texas' colleges and universities — both public and independent, or private, institutions — began to increase in the late 1990s following little or no growth in the middle part of the decade.

The enrollment growth has been uneven, however, with some types of institutions reporting significant increases during recent years while others have reported little or no growth.

Most of the growth over recent years has occurred at lower-division, two-year institutions – the sector primarily made up of the state's public community and technical colleges.

Late in the 1990s, enrollments at Texas public universities began to reverse a prior downward trend. Notably, however, some of the enrollment increases attributed to public universities in fall 1999 include approximately 3,000 Texas A&M University veterinary medicine students who were in prior years, reported in the health-related institutions category. In addition, the fall 1999 figures include approximately 1,000 students (based on fall 1998 enrollments) who attended the former University of Central Texas, an independent institution that dissolved upon the creation at the same site of a



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public university system center administered by the Texas A&M University System and its Tarleton State University. Without those additions, enrollments at Texas public universities increased in fall 1999 to only a relatively small amount more than they were six years ago.

At the state's public health-related institutions of higher education, enrollments have leveled off after many years of growth. However, enrollment statistics maintained by the Coordinating Board indicate a substantial decrease in fall 1999 enrollments to approximately 12,500 students. This change primarily reflects an adjustment in the way some of these enrollments are categorized. Approximately 3,000 veterinary medicine students, who would have been reported in the health-related institutions category in previous years, were reported in the public university category in fall 1999.

Enrollments continue to increase steadily at Texas' 37 independent colleges and universities.

➨ Enrollment Projections

Based on current participation and demographic trends, the Coordinating Board projects that Texas higher education institutions will enroll nearly 1.2 million students annually – approximately 240,000 more students than today – by 2015. Approximately 166,000 of those additional students will be enrolled in public institutions.

Every type of institution is expected to have increased enrollments, but as in the 1990s, most of this growth is expected to occur at community colleges.

However, enrollment growth will be uneven across the state. Four regions – Central Texas, the Dallas/Fort Worth Metroplex, the Gulf Coast, and South Texas – are expected to account for 90 percent of the projected enrollment increases.

The Coordinating Board's *Closing the Gaps* higher education plan for the state (see "Statewide Planning Efforts section) establishes a goal of enrolling 500,000 more student in Texas higher education by 2015. To meet this goal, the state and its higher education community will have to successfully recruit and retain hundreds of thousands of additional students beyond those that will enroll based on current participation and demographic trends.

➨ Minority Participation Trends

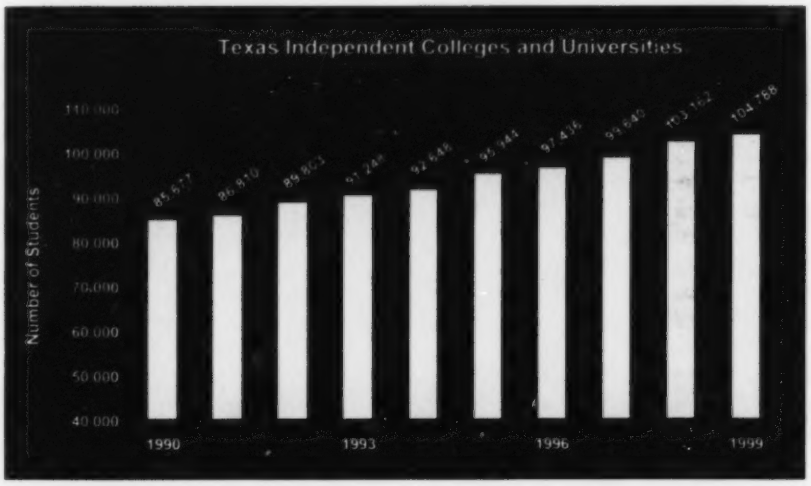
Texas' largest minority groups – Hispanics and Blacks – have long been underrepresented in Texas higher education. Today, Hispanics account for approximately 34 percent of the state's college-age (15-to-34) population, but less than 24 percent of the state's public higher education enrollment. Blacks make up 13 percent of the college-age population, but less than 10 percent of enrollment at public colleges and universities.

The gaps between the higher education participation rates of these minority groups and Whites remain large, although they are closing. In 1999, 8.9 percent of college-age (15-to-34) Hispanics were enrolled in higher education, up from 7.8 percent in 1990. The Black participation rate was 11.1 percent, up from 8.7 percent in 1990. However, the White participation rate decreased during the same period – from 17.2 percent in 1990 to 15.5 percent in 1999.

Some minority groups – particularly Hispanics – are rapidly growing in Texas. Minorities, as a group, are expected to outnumber the state's White population within the next decade, perhaps by 2008, according to demographic projections.

Taken together, these trends suggest an unsettling future for Texas. Unless higher education participation rates among the state's minority populations improves substantially, the state will have a large, underskilled, and undereducated work force, unable to attract and retain high-skill, high-wage jobs. Without those good jobs, statewide personal income will decrease while the demand for government social services will increase – forcing all Texans to pay the consequences through higher taxes, less effective services, and a lower quality of life.

Much of the state's effort to improve minority participation in higher education has been cen-



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tered on successive multi-year plans, beginning in 1983, for improving minority participation. Affirmative action policies and procedures were typical responses at the state's most selective higher education undergraduate institutions and law, medical, and other professional schools.

Affirmative action programs in Texas higher education were deemed illegal, however, in the 1990s. In 1996, the U.S. 5th Circuit Court of Appeals ruled in *Hopwood v. Texas* that race and ethnicity had been used illegally in admissions decisions at The University of Texas at Austin law school. A subsequent opinion issued by then-Texas Attorney General Dan Morales in early 1997 interpreted the *Hopwood* ruling to mean that race and ethnicity can no longer be used in admissions and financial aid decisions at any Texas public higher education institution.

Although in 1999 Texas Attorney General John Cornyn rescinded the opinion issued by his predecessor, he cautioned the state's higher education institutions not to make any changes or reversions to pre-*Hopwood* admissions or financial aid procedures until the courts had clarified issues related to *Hopwood*.

The effects of *Hopwood* struck hardest at the state's more selective undergraduate institutions, where affirmative action admissions and financial aid programs and policies had worked toward improving racial and ethnic diversity among students. Also hard hit were the state's graduate, medical, and law schools.

State government and the institutions responded by implementing innovative programs and procedures for maintaining student diversity on the state's college campuses. As a result, minority student enrollment at many of these more selective institutions and programs has begun to reach or increase beyond pre-*Hopwood* levels, according to recent enrollment figures. However, the state's Hispanic and Black populations remain severely underrepresented in Texas higher education.

➨ Factors Affecting Participation in Higher Education

Many different factors, and often a combination of factors, affect people's decisions to enroll or not enroll in higher education. These factors include college costs, geographic access, perceptions about the college experience, academic preparation, motivation, and other personal and family commitments. Many of these factors also play a role in determining a student's success in higher education.

The Texas higher education community, as well as the Texas Legislature, Texas state education agencies, and business and civic leaders, have taken measures over recent years to address many of these challenges. In particular, many of the more recent efforts have been developed in response to the *Hopwood* ruling.

➨ Efforts to Improve Higher Education Participation Rates

The Texas Legislature's first post-*Hopwood* session, in 1997, produced legislation that guarantees admission to a Texas public college or university for any student who ranks in the top 10 percent of his or her high school class. Institutions also have the option to increase automatic admissions to include students who rank in the top 25 percent of their high school class. After admitting students under those provisions, institutions must consider any, all or a combination of 18 other factors when admitting students. Examples of those factors include the student's academic record, the student's socioeconomic background, the performance of the high school the student attended, the financial status of the student's school district, the student's personal responsibilities while attending high school, the student's performance on standardized tests, and the student's extracurricular activities.

Unfortunately, there is no statewide database containing information on the number of top 10 percent students who were admitted to Texas higher education institutions prior to the fall 1998 effective date of the top 10 percent legislation. Without that comparative data, it is difficult to determine the direct effect of the top 10 percent law.

However, the Coordinating Board has extensive, long-term data on the number of first-time-entering freshmen students enrolled at Texas public higher education institutions for each fall semester. Analysis of this data indicates that the racial/ethnic diversity of these students has changed little over the past five years – approximately 59 percent White, 21 percent Hispanic, and 12 percent Black. From fall 1997 to fall 1998, the percentage of White and Hispanic first-time-entering freshmen increased by .6 and .4 percentage points, respectively, to 59.6 percent and 20.7 percent. However, the percentage of Black first-time-entering freshmen decreased by approximately 1 percent, from 12.4 percent to 11.4 percent, during the same period.

The affordability of college is another challenge to greater participation. Lower costs at community colleges, compared to those at universities, are often cited as one of the factors related to the rapidly increasing enrollments at community colleges. Tuition and fees at the state's public universities in par-

ticular have increased significantly as a proportion of median household income over the past decade.

In its 1999 session, the Texas Legislature focused on financial aid and academic preparation as methods for overcoming the *Hopwood* effect and for improving higher education participation and success rates. On this front, the primary legislative initiative was creation of the Toward EXcellence, Access & Success Grant program – commonly called the TEXAS Grant program.

TEXAS Grants pay college costs for financially needy recent Texas high school graduates who completed a college-preparatory curriculum in high school. In general, a college-preparatory curriculum requires additional or advanced courses in higher-level mathematics, science, social studies, as well as courses in a foreign language.

To remain eligible for the program, students must demonstrate satisfactory academic progress as they move through college.

Grant amounts reflect each student's tuition and fees, depending on the number of semester credit hours and the average cost of tuition and fees at the type of institution (university or community college or technical college) in which the student is enrolled. Cost figures for public universities are used to determine grants to eligible students at the state's independent colleges and universities.

Each grant is considered full payment for the grant recipient's tuition and fees at the institution in which he or she is enrolled. Institutions with tuition and fees that are higher than the statewide average may not charge a TEXAS Grant recipient more than the state average for the same type of institution. However, the difference can be made up through other financial aid, excluding loans or federal Pell Grants.

The 76th Legislature appropriated $100 million for the program over the state's two-year budget period that began September 1, 1999, but also directed that the program be implemented in a way that will require the next Legislature – meeting in 2001 – to appropriate only another $100 million for the succeeding biennium. To meet this requirement, approximately $18 million was made available for TEXAS grants in the 1999-2000 school year, with another $33 million to serve two classes of students set aside for the 2000-2001 school year. The remainder of the original $100 million appropriation will be used to serve the additional classes of students that will enter college in the following two years. If future Texas legislatures continue to provide additional funds for each new class as it enters college, annual funding will be near $100 million within five years.

The legislation that established the TEXAS Grant program also established the Teach for Texas Conditional Grant Program, which provides as much as twice the amount of TEXAS Grant awards to juniors and seniors who will become new teachers in disciplines with a critical shortage of teachers or in areas of the state with a critical shortage of teachers. An additional $2 million was appropriated each for the 1999-2000 and 2000-2001 school years for the Teach for Texas grant program.

In addition to these grant programs, the TEXAS Grant legislation also established a Center for Financial Aid Information to provide information on financial aid and higher education to middle and high school students and their parents, as

Tuition and Fees at Public Universities

As a Percentage of Median Household Income

1998 *	7.4%
1992	5.5%
1986	3.9%

Tuition and Fees at Public Community Colleges

As a Percentage of Median Household Income

1997 *	3%
1991	2.4%
1986	Data not available

* Most recent available data.

well as to counselors through a toll free telephone number.

Financial aid for Texas college students was strengthened further with Texas voters' support in November 1999 for Proposition 13, which authorized the Coordinating Board to issue an additional $400 million in state of Texas general obligation bonds to provide funds for loans through the Hinson-Hazlewood College Student Loan Program. Voter approval of this measure will allow the Coordinating Board to continue to provide approximately $85 million annually in loans to help Texas students pay college costs.

The 76th Legislature Established Several Financial Aid Programs

- *Matching Scholarship to Retain Students in Texas* - helps retain Texas high school graduates in the state by allowing Texas higher education institutions to match non-athletic scholarships offered to these graduates by out-of-state institutions.
- *Early Childhood Care Provider Student Loan Repayment Program* - helps recruit and retain qualified early childhood care providers who primarily provide child care to young children in licensed Texas child care facilities.
- *Dental Education Loan Repayment Program* - helps recruit and retain qualified dentists to practice in underserved areas of the state.
- *Border County Doctoral Faculty Education Loan Repayment Program* - helps recruit and retain faculty at Texas higher education institutions along the state's border with Mexico.

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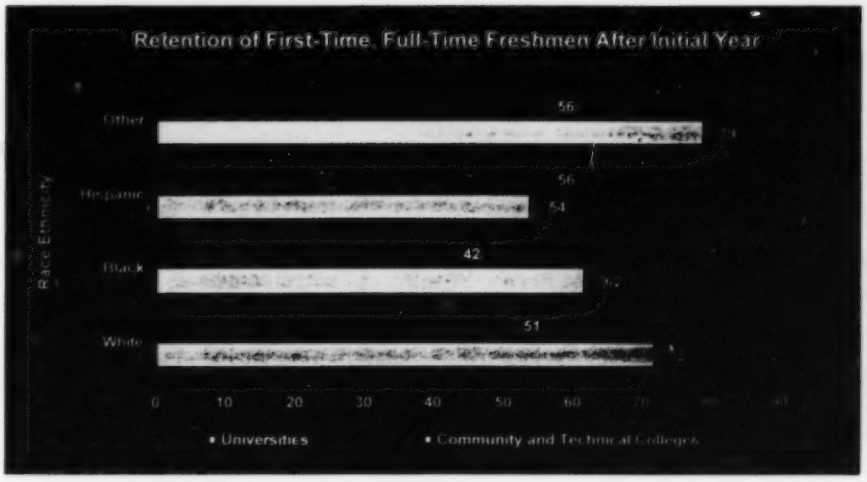
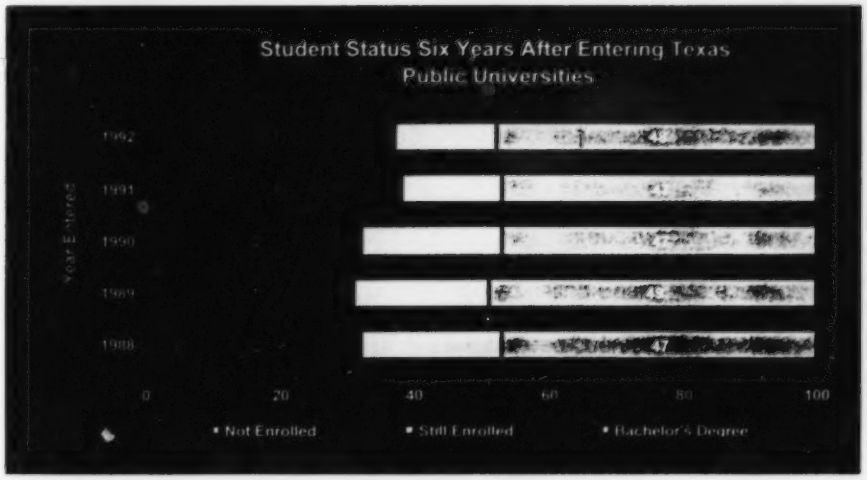
➨ Success

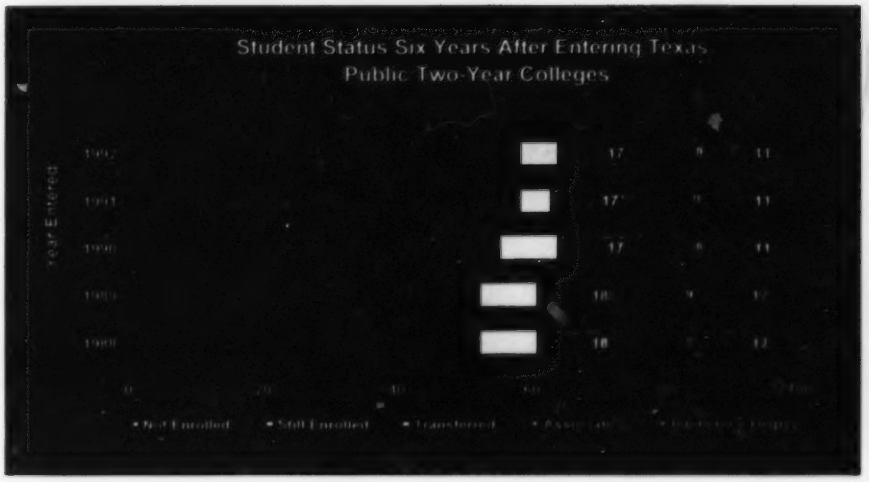
To be meaningful, measures of students' success in higher education must reflect students' goals. Some students desire only to complete the single course, perhaps offered by a community college, that will give them the new skills they need for greater on-the-job opportunities. Others desire somewhat more education, perhaps courses or an associate's degree leading to transfer to another institution or better job opportunities, or a bachelor's degree to provide even more job opportunities or to open the door to graduate or professional school.

Student progress toward some of these goals can be measured easily through year-to-year retention rates and graduation rates.

Unfortunately, these indicators do not adequately measure success toward many other legitimate, but shorter term, academic goals — such as completing a few courses to learn or enhance skills. For example, community and technical colleges provide customized and contract workforce instruction, courses for professional certification and licensure, and general continuing education opportunities. In addition, educators recognize that even students who do not reach their goals, such as graduation with a bachelor's degree, will have the opportunity to reap benefits from the higher education work that they complete.







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➨ Efforts to Improve Student Success in Higher Education

The TEXAS Grant (see "Participation" section) program's incentives for high school students to adequately prepare themselves academically for college by taking additional or advanced courses – the college-prep curriculum – helps ensure that students have the academic skills they need to succeed in college. The creation of the TEXAS Grant program follows other efforts by state government to help ensure students' success in college.

For example, the Texas Academic Skills Program (TASP) continues to help students assess the strength of their basic academic skills before they enter college. Students who do not pass all three sections – in reading, writing, and mathematics – of the TASP Test or an approved alternative exam are given opportunities to take developmental education in the area or areas in which their skills are deficient.

The Coordinating Board amended its rules in 1999 to give the state's public colleges and universities more flexibility to address the individual developmental education needs of their students, while placing more responsibility on those institutions to ensure effective developmental education efforts. Under the amendments, institutions decide when a student should begin TASP-required developmental education and when a student has completed those requirements. Institutions also determine exceptional circumstances for which students can enroll prior to testing, and when students may take courses in which "B-or-better" grades will meet TASP requirements. In addition, the rule amendments make it possible for transfer students with 60 or more semester credit hours from out-of-state or Texas independent institutions to satisfy TASP requirements with courses they have completed previously.

The rule changes also require institutions to adopt a written developmental education plan for the assessment and placement of new undergraduate students. These plans must include, but are not limited to, students' paths through developmental education deferral options, provisions for transfers, and exceptional enrollment circumstances.

Despite the 10-year history of the TASP, it has produced little accurate comparative trend data regarding the amount or quality of academic preparation achieved by the state's high school students during that period. Frequent changes in state law and Coordinating Board rules over the past decade, while implemented to improve the program, also affected major program requirements. For example, during the early years of the program, students could take the TASP test after completing as much as 15 hours of college coursework, but today students must take the TASP Test or an approved alternative assessment prior to entering college.

Additionally, every student entering a Texas public higher education institution was required to take the TASP Test when it was first established, but today many students are exempted after they perform at high levels on the Texas Assessment of Academic Skills (TAAS) high school exit exam or the Scholastic Assessment Test (SAT) and ACT college entrance exams. Furthermore, the TASP Test is not required of high school students who enroll in independent or out-of-state colleges.

Although frequent changes in the laws and rules implementing the TASP have prevented the collection of accurate trend data regarding student preparation, other data providing information about the cost and amount of developmental education provided at the state's public higher education institutions can be more useful. The number of developmental education hours taken by students increased rapidly in the years after the TASP was created. During the past two biennia, however, the number of developmental education hours has leveled off.

Texas' public community colleges, which are open enrollment institutions that can be expected to enroll fewer well-prepared students, account for 90 percent of the developmental education in Texas public higher education. During the 1990-91 base year, which was the first year after the TASP was implemented, developmental education contact hours at Texas community colleges increased 64 percent, while total contact hours increased 9 percent. By comparison, developmental education hours increased 2 percent during the 1998-99 base year, while total contact hours increased 4 percent.

The state's public universities reported similar trends. During the 1990-91 base year, developmental education hours at these institutions increased 46 percent, while lower-division instructional hours increased only 4 percent. However, developmental education hours increased only 1 percent during the 1998-99 base year, while lower-division hours increased 2 percent.

Despite moderation in the growth of developmental education instruction, it continues to account for a large amount of state appropriations – $183 million in the 2000-01 biennium. Recent biennium-to-biennium increases in developmental education appropriations primar-

ily reflect increases in formula funding rates, however, rather than increased developmental education.

To help improve the quality of developmental education, the 76th Texas Legislature in 1999 directed the Coordinating Board to establish two performance-based pilot projects – one for universities and one for community and technical colleges. These projects will base a portion of a participating institution's appropriation for developmental education programs on the number of students who demonstrate they have successfully completed developmental education during the previous year at universities, and on success in improving academic preparation of students who have not met basic college readiness standards at community and technical colleges.

Through another effort, Texas received $4.6 million – the second largest amount nationwide – in the Gaining Early Readiness for Undergraduate Programs (GEAR UP) grant competition sponsored by the U.S. Department of Education. With this grant and another $9 million in 15 partnership grants – the second largest number in any state – involving higher education institutions, school districts with low-income middle or high school students, businesses, and community organizations, the state will help prepare underprivileged students for college. The funds are aimed at following these students' progress from the seventh grade through high school graduation and helping them prepare for college.

In Texas, significant collaboration and cooperative efforts between higher education and public education is becoming widespread as both sectors recognize the need to work together to educate the state's students to their highest potential. In particular, higher education is working hard to improve educator preparation programs and establish partnerships with the public school community.

For example, the "Partnership for Public Schools" is a joint effort of the Texas A&M University System and the Texas Education Agency to improve teacher preparation programs and public education. The partnership includes activities to strengthen curriculum alignment and instructional transition among public high schools, community colleges, and universities. It also promotes collaborative research.

In addition, through its Charles A. Dana Center, The University of Texas at Austin studies public education issues such as the kindergarten/college "educational pipeline."

Also, the federally funded Tech-Prep program integrates the final two years of high school with the first two or four years of college. More than 62 percent of the state's school districts and more than 97 percent of the state's public community and technical colleges participate in this effort.

Another example is West Texas A&M University's "Texas Rural Systemic Initiative" with 11 partner institutions and several associations and agencies. This five-year project focuses on improving K-12 math and science education in designated counties.

Still another example is the Eisenhower Professional Development Grants Program, a federally funded effort providing grants to institutions of higher education and non-profit organizations to promote improved instruction in mathematics, science, and reading for Texas school children by providing training for their teachers. The program is administered by the Coordinating Board.

State government educational agencies have also recognized their joint responsibilities in education, and they have substantially increased their cooperative efforts to discuss and explore solutions to educational challenges facing the state. One example of this growing joint responsibility is a public education/higher education coordinating group, made up of the Commissioner of Education, the Executive Director of the State Board for Educator Certification, and the Commissioner of Higher Education.

The coordinating group has substantially increased communication among staff at the three agencies, leading to increased efficiency and effectiveness for state programs and a better understanding of the roles played by each agency. As a result, the public education sector is becoming more focused on preparing students for college, rather than merely graduating students from high school. Likewise, the higher education community is more focused on improving educator preparation efforts and helping public schools prepare students for college.

For example, teacher certification exam results for students from particular teacher education programs at universities help the Coordinating Board focus attention on improving degree programs for prospective educators.

With support from this data, the Coordinating Board adopted a plan for improving teacher preparation programs at public universities in the state.

Increased exchange of data also allows students to be tracked from high school and into college, which is helping the state determine which students go on to college, the courses they have taken to prepare for college, their success through the educational system, and related findings.

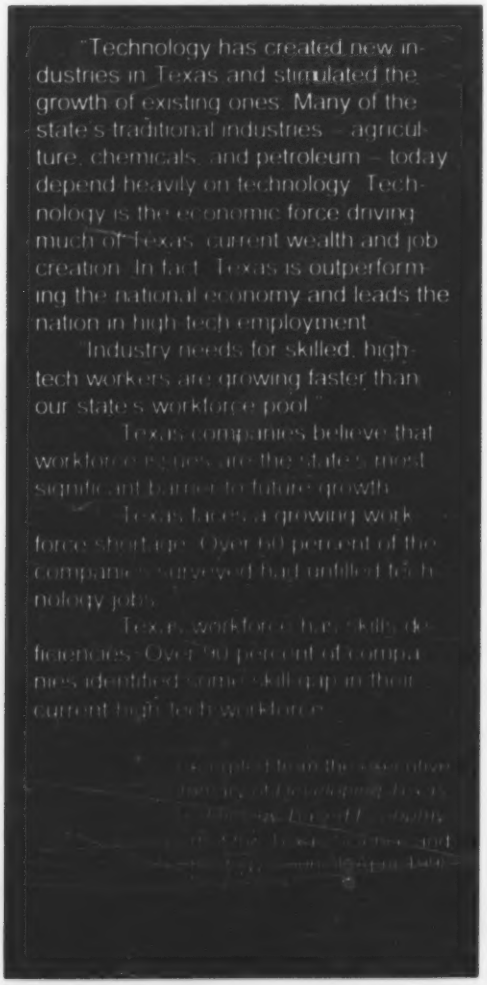
Meeting Workforce Needs

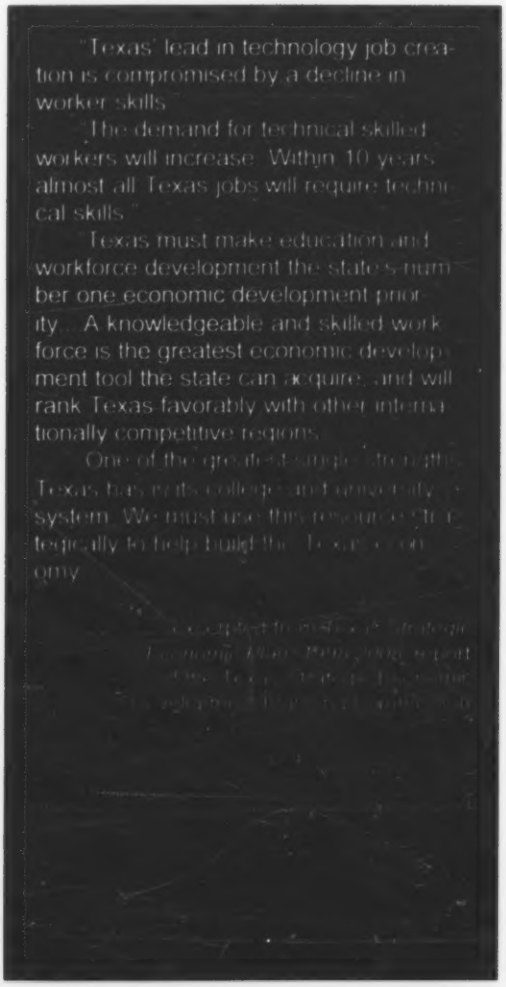
High-technology is becoming so pervasive in the American workplace that it is difficult to imagine an industry that does not or cannot use it in some way. As a result, the term "high-technology workforce" should be considered to refer not only to people working in industries involved in high-tech equipment and services, but also to people who must apply high technology in the operations of a wide range of other industries.

Nationwide, the workforce was 60 percent unskilled in the 1950s, with only 20 percent of workers identified as skilled and another 20 percent as professional. In the 1990s, those figures have been reversed, with more than 60 percent of the workforce identified as skilled, and less than 20 percent unskilled. The professional category remains at approximately 20 percent.

In addition to meeting existing needs, the workforce must have the knowledge and technological skills needed for jobs that do not yet exist, just as positions like today's high-demand webmaster and e-commerce specialist did not exist 10 years ago.

Retraining must also be provided for people who hold jobs that become obsolete or replaced by new technology. The state economy's move away from its traditional reliance on fossil fuels has been rapid since it began in the 1980s. Mining, which in Texas primarily refers to oil and gas production, had accounted for as much as 19.5 percent of the state's economy in the early 1980s. A sharp decrease in the price of oil during that decade generated economic turmoil in the state. State leaders looked for new


"Technology has created new industries in Texas and stimulated the growth of existing ones. Many of the state's traditional industries – agriculture, chemicals, and petroleum – today depend heavily on technology. Technology is the economic force driving much of Texas' current wealth and job creation. In fact, Texas is outperforming the national economy and leads the nation in high-tech employment.
Industry needs for skilled, high-tech workers are growing faster than our state's workforce pool."
Texas companies believe that workforce issues are the state's most significant barrier to future growth.
Texas faces a growing workforce shortage. Over 60 percent of the companies surveyed had unfilled technology jobs.
Texas workforce has skills deficiencies. Over 90 percent of companies identified some skill gap in their current high-tech workforce.


"Texas' lead in technology job creation is compromised by a decline in worker skills.
The demand for technical skilled workers will increase. Within 10 years, almost all Texas jobs will require technical skills.
Texas must make education and workforce development the state's number one economic development priority. A knowledgeable and skilled workforce is the greatest economic development tool the state can acquire, and will rank Texas favorably with other internationally competitive regions.
One of the greatest strengths that Texas has is its college and university system. We must use this resource strategically to help build the Texas economy.

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ways to encourage, attract and retain other types of business and industry.

As a result, Texas today enjoys a much more diversified economy. Mining accounted for only an estimated 6.1 percent of our economy in 1999, only about one-third of its significance 15 or 20 years ago. Remarkably, the state's economy remained robust as oil prices dropped in the 1990s — another sure indicator of the state's changing economic picture.

The state's educational system has a primary role to play in helping the state adjust its work force in response to these changes. Public community and technical colleges provide leadership in meeting local employers' needs; creating innovative approaches for anticipating changes in those needs; identifying and meeting real needs, rather than a perception of those needs; and creating an awareness of workforce education opportunities.

For example, a community college might address changing local workforce needs by providing English language instruction to people who lost jobs after a major employer closed a plant, providing mechanics with the new skills they need to work on developing and building a new type of aircraft, providing computer skills needed to oversee traditional petrochemical industries, offering flexible schedules and cost-effective training to small businesses, and developing partnerships with local industries and healthcare providers to meet their workforce needs.

The state's public Texas State Technical College System plays a similar role, particularly through strategically located regional campuses and extension centers, partnerships with community colleges to leverage the strengths of both types of institutions, strong links with industry partners and employers, addressing high-priority technical skill needs statewide and locally, and balancing quality and cost for a solid return on investment and equity.

Engineers, produced by the state's universities, are also needed to meet higher-level workforce needs in high-tech and other businesses and industries. In addition, these engineers provide the pool of people who will become faculty, for teaching the next generation of Texans, and higher education researchers, for developing new technology.

Research activities at Texas higher education institutions provide excellent opportunities for students to develop the skills they need to become part of the state's scientific and technology workforce. By working on research projects under the guidance of scientists and other researchers at higher education institutions, students become versed in state-of-the-art knowledge and technologies.

Research expenditures by Texas higher education institutions continue to increase, suggesting that these learning experiences for students also continue to expand. Texas public higher education institutions spent nearly $1.6 billion on research in Fiscal Year 2000, a 10 percent increase over the previous year.

Despite the increases in high-tech degrees awarded by Texas public higher education institutions, there is reason to believe that demand for workers with these types of degrees has not been met. A study published by the Texas Science and Technology Council in 1998 identified two major educational challenges that contribute to the state's technology workforce shortage:

- *The state is not producing enough high school graduates with adequate science, math, and communication, or problem-solving skills.* As a result, the study reported, too few high school graduates pursue technology-related postsecondary education and training.
- *The state is not producing enough college graduates with technology-related degrees.*

Further evidence of the inadequate production of graduates in technology-related fields was noted in an analysis by the American Electronics Association (AEA), which represents many of the nation's high-tech industries. AEA reports that the number of high-tech jobs in Texas increased by 37 percent – representing nearly 102,000 new positions – between 1990 and 1997, but the number of high-tech degrees awarded increased by only 8 percent. For this study, the AEA defined high-tech fields as engineering, engineering technology, computer science, mathematics, natural sciences, and business information systems.

The AEA study also documented the growing gap in average wages for high-tech positions compared to other private sector wages. In Texas, average wages for high-tech fields increased 22 percent to $53,778 from 1990 to 1997, compared to an increase of only 8 percent to $30,102 in the private sector over the same period. High-tech wages were 79 percent higher than other private sector wages.

The state may face workforce development challenges in other disciplines as well. Health care is an area of special concern, and planning efforts under way by the Texas Higher Education Coordinating Board are expected to address health care education needs – as well as technology education needs – in particular. (See "Statewide Planning Efforts" section.) Other areas of special need may be identified as well.

Funding

The $12.5 billion 2000-01 all funds appropriation (includes general revenue, tuition and fees, and other appropriations) for higher education marked a $1.6 billion, or 14.6 percent, increase over the previous biennium – one of the largest biennium-to-biennium increases in recent years. In addition, the $12.5 billion amount represents 28 percent of the total education appropriation and 12.5 percent of the state's total all funds appropriation.

The all funds legislative appropriation for education – including public education, higher education, and related categories – is approximately $44.8 billion for the 2000-01 biennium, representing more than 45 percent of the state's total all funds appropriations.

Higher education appropriations for the 2000-01 biennium includes funding for several notable efforts.

For example, $100 million was appropriated for the new TEXAS (Toward EXcellence, Access, & Success) Grant Program (See "Participation and Success" section), which provides need-based financial aid to recent high school graduates who have completed the college-preparatory curriculum and enroll in college. Also, the Tuition Equalization Grant program, which supports students at independent, or private, colleges and universities in Texas, received a $30 million increase in biennial funding to $124 million.

In addition, $78.6 million was provided by the 76th Legislature to address inequities in capital funding between public universities that receive financial support from the investment returns of the Permanent University Fund and public higher education institutions that receive similar funding from the Higher Education Assistance Fund.

All funds appropriations for 2000-01 also included $101.5 million in revenues generated from approximately $1 billion in higher education endowments established by the 76th Texas Legislature with funds received from the settlement of a State of Texas lawsuit against tobacco companies. The endowments established four major permanent funds to generate investment returns, primarily for the use of the state's higher education health-related institutions:

- Permanent Health Fund for Higher Education, endowed with $350 million, with 70 percent of investment returns to be distributed in equal amounts to the state's health-related institutions, with an additional 10 percent based on the proportion of instructional expenditures, 10 percent based on the proportion of research expenditures, and 10 percent based on the proportion of unsponsored charity care experienced by each of the institutions.
- Permanent Funds for Health-Related Institutions, providing separate endowments ranging from $20 million to $200 million in endowments to individual health-related institutions. In general, these investment returns can be used for research and other programs benefiting public health.
- Permanent Fund for Higher Education Nursing, Allied Health, and other Health-Related Programs, endowed with $45 million to be distributed

Higher Education Appropriations (amounts in billions)	1998-99 Biennium	2000-01 Biennium	Increase	Percent Increase	Percent of Appropriation (2000-01)
Universities	**$4.21**	**$4.76**	**$.55**	**13%**	**38%**
Community Colleges	$1.48	$1.63	$.15	67.6%	13%
Health-Related Institutions	$3.22	$3.78	$.57	17.6%	30.2%
Higher Education Assistance Fund and Available University Fund	$.95	$.98	$.21	2.2%	7.8%
Technical Colleges	$.14	$.19	$.56	40.7%	1.5%
Other	$.94	$1.19	$.25	26.6%	9.5%
Total	$10.94	$12.53	$1.6	14.6%	100%

by the Coordinating Board through grants to public higher education institutions that offer upper-level academic instruction and training in nursing, allied health, or other health-related education.

- Permanent Fund for Minority Health Research and Education, endowed with $25 million to be distributed by the Coordinating Board through grants to higher education institutions, including Centers for Teacher Education, that conduct research or educational programs that address minority health issues or form partnerships with minority organizations, colleges, or universities to conduct research and educational programs with minority health issues.

Although the 76th Legislature did not provide higher education institutions with the authority to issue additional tuition revenue bonds for construction projects, lawmakers appropriated $202.3 million in debt service — a $78.6 million, or 61 percent, increase — for the bonds authorized in previous years.

In addition, Texas has two funds for supporting capital construction projects. The Available University Fund, which represents earnings from the state's Permanent University Fund (PUF), provides additional capital construction money to most of The University of Texas System and Texas A&M University System institutions. A constitutional amendment approved by Texas voters in November 1999 allows PUF institutions to tap a limited amount of the capital gains generated by the PUF. The amendment also allows PUF assets to be managed and invested using "prudent investor" standards — requiring investments that a prudent investor exercising reasonable care, skill, and caution would use.

Royalties, licensing fees, and other transactions involving intellectual property generated through research activities are providing increasing revenues for many of the state's higher education institutions. In Fiscal Year 1999, those activities generated nearly $21 million, which is almost 22 percent more than in the previous year.

The state's Advanced Research Program and Advanced Technology Program, which together make up the largest state-funded, competitive, peer-reviewed research effort in the country, continue to receive a biennial state appropriation of approximately $60 million for research activities at Texas public and independent higher education institutions.

New Trends in the Delivery of Higher Education

➨ Supply/Demand Pathway

In an effort to increase access to higher education without immediately creating new, free-standing higher education institutions, the Texas Higher Education Coordinating Board has created the Supply/Demand Pathway – also known as the Higher Education Pathway – for providing higher education instruction in underserved parts of the state.

The pathway model, which strives to avoid overcommitting or undercommitting state resources by providing an incremental approach for meeting higher education needs, is based on two principles:

- Texas should provide the resources necessary to successfully meet higher education demand across the state; and,
- State resources should increase or decrease with the demand for higher education in the various regions or areas of the state.

To implement the pathway model, the Coordinating Board uses three categories to define different levels of higher education services for an area or region of the state that needs more of those services.

Category A. Off-campus courses or programs are offered in the area by one or more existing higher education

Category B. As demand increases, more courses and programs may be offered through a multi-institution teaching center (MITC) or a university system center.

A MITC provides a central location for one or more participating colleges and universities to offer programs through "one-stop shopping" for students at a single site. A university system center, proposed by a university system as part of an existing university and approved by the Coordinating Board, provides needed courses and programs from all of the institutions within the system.

Both the MITC and the university system center provide the potential for substantially increased higher education offerings, the ability to rapidly adjust those offerings as needs change in the area, and higher education leadership in the area – all at relatively modest costs.

MITCs and university system centers are funded through the state's higher education formulas, which allocate most of the state's higher education appropriations among institutions. Each MITC or university system center is managed by a parent institution or through a consortium agreement, focuses on teaching rather than research, awards course credit and degrees in the name of the institution – not the MITC or univer-

MITC	Number of Institutions	Classes Began	Number of Courses and Degree Programs (Fall 1999)	Enrollment (Fall 1999)
Universities Center of Dallas	8	Summer 1994	62 courses; 5 programs	786
University of Houston System at Fort Bend	4	Fall 1995	167 courses; 32 programs	1,417
University Center, The Woodlands	7	Fall 1997	143 courses; 50 programs	1,360
North Austin/Williamson County MITC	5	Fall 1998	83 courses; 22 programs	823
Tarleton State University System Center-Central Texas	6	Fall 1999	136 courses; 21 programs	1,272
University of North Texas System Center at Dallas	2	Fall 1999	5 courses; 5 programs	52
Texas A&M University-Kingsville System Center-Palo Alto (authorized January 2000)	At least 3 initially	Fall 2000	6 programs	(Classes begin Fall 2000)

sity system center – authorized to provide them, and usually use locally provided facilities, often located on or near a community college campus. MITCs and university system centers emphasize upper-division and graduate-level instruction, and are encouraged to develop campus-specific articulation agreements and partnerships with local community and technical colleges and other universities.

Category C. If a university system center has a full-time-equivalent enrollment of 3,500 students for four fall semesters within five years after it has been established, the parent university may ask the Coordinating Board to recommend that the Texas Legislature convert the center into an upper-level university.

MITCs and university system centers have become the most popular of the pathway options, and seven of them now have Coordinating Board authority to operate within Texas. Each is unique, according to local needs and circumstances.

➨ Distance Education

By definition, distance education refers to instruction delivered by a faculty member to students at a different place. Distance education takes many forms, including instruction broadcast by television, instruction on videotapes that are physically sent to students, instruction through interactive (two-way communication) television, and instruction online via the Internet.

Today, almost all public higher education institutions in Texas provide at least some distance education opportunities for students. Semester credit hours earned through distance education account for about 2 percent of all instruction today.

Distance education is becoming popular because it provides increased opportunities to provide education over great distances or at any date and time. Distance education is providing unprecedented access to higher education, especially for people in Texas and elsewhere who have not been served by traditional, geographically based education providers. It is a tool that has great potential for transforming the delivery of higher education, and much more development of distance education opportunities is expected.

Distance education brings new challenges, however. The delivery and support of quality distance education is time consuming and expensive, and news media and public expectations of distance education opportunities may exceed the resources and diverse capabilities needed to implement it well. Quality learning through distance education is also difficult to ensure and evaluate.

Greater success through distance education will require faculty acceptance and involvement in developing this nontraditional mode of education, and that in turn will require increased training and support for faculty. They will need help, perhaps in course and learning resource development, to ensure the delivery of quality distance education.

Student readiness and preparation for distance education is also a factor that will determine its ultimate success. For example, students generally need greater personal motivation to participate in and perform well in distance education courses.

Prior to the technological advances leading to substantially increased distance education opportunities, political boundaries allowed states to effectively control educational quality at their institutions. To receive instruction, students had to attend college on campuses where indicators of quality – such as highly credentialed faculty and comprehensive libraries – could be easily measured and assessed. Today, the rapidly growing use of distance education via electronic delivery allows educational services to cross over political borders – thereby eroding state and local governments' ability to carry out their consumer protection role for their citizens.

The Coordinating Board is encouraging innovation by colleges and universities on the condition of a promise by the institutions to ensure quality in educational offerings. To allow higher education governing boards greater independence and flexibility in authorizing their institutions to offer electronically delivered distance education courses and programs, the Coordinating Board amended its rules in late 1998.

For example, the amended rules allow community college governing boards – rather than the Coordinating Board – to approve the offering of electronically delivered courses within the colleges' service areas. In addition, university, health science center, and technical college governing boards may approve the offering of courses anywhere in the state. The Coordinating Board, however, must approve the offering of doctoral programs through distance education.

The amended rules also include safeguards to ensure that high quality instruction and student support services are maintained. Institutions and governing boards must affirm that they comply with the *Principles of Good Practice for Courses and Programs Delivered Electronically*, which were adopted by the Coordinating Board in 1998.

Other rule changes are allowing greater access to the promise of distance education in other ways. Although the Coordinating Board in the past rec-

ognized only the Southern Association of Colleges and Schools as an accrediting body, the Board recently recognized the five other regional accreditors in the nation. This will allow institutions that had been accredited by another regional accreditor an easier path to receive authorization from the Coordinating Board to operate in Texas, and thereby increase educational offerings available to Texans.

The Southern Regional Educational Board, which is an educational organization that serves 17 southern and southeastern states, including Texas, has established another notable distance education effort that crosses state lines. Through its Electronic Campus, more than 200 universities in its member states are offering about 2,000 courses and nearly 100 degree programs. Several Texas institutions are participating.

Other distance education efforts initiated by Texas higher education institutions are successfully serving Texans. For example, the Virtual College of Texas allows students to take advantage of testing services, libraries, and other student support at a local community college while taking courses electronically from a distant community college offering a program not available at the local institution. Other examples include efforts by the Texas Tech University Health Sciences Center to provide working nurses in the Hill Country and West Texas with electronic access to programs for advanced degrees, and The University of Texas System's Telecampus, which is making MBA programs more accessible. The Texas higher education community offers many other distance education opportunities as well.

➨ Other Innovations

New technologies also allow increased sharing of educational and other resources. For example, the TexShare program allows academic and public libraries to share their combined resources and collections, and this in turn gives students at one higher education institution the ability to search and gain access to the library collections at another institution.

Another benefit is the combined buying power of Texas libraries, which has already resulted in cost reductions for electronic information subscriptions for many Texas college and university libraries. Although TexShare was limited initially to serving public university libraries, it has since expanded to serve all Texas higher education institutions, as well as public libraries throughout the state.

Higher educational programs that reach back to students in Texas high schools are also improving access to college for students. For example, concurrent enrollment allows high school students to take community college credit courses while still enrolled in high school, and early admission efforts allows high school students to take high school courses during the day, but college courses in the evening or on weekends. As a result of these types of efforts, more than 26,000 students under age 18 were enrolled in Texas public community colleges in fall 1999, compared to less than 13,000 in fall 1995. Many universities offer similar opportunities.

Advanced Placement (AP) programs, which provide college-level courses to high school students, also increase access to higher education.

Statewide Planning Efforts

In response to growing recognition of the need for Texas higher education to serve all of its citizens and to develop a well-educated and trained work force that will maintain and enhance the state's economy, two major higher education planning efforts were initiated in 1999.

These efforts – initiated by then-Lieutenant Governor Rick Perry and by the Texas Higher Education Coordinating Board – are expected to produce plans and recommendations for consideration by the 77th Texas Legislature.

In addition to these efforts, several higher education issues are under study by interim legislative committees.

Lieutenant Governor's Special Commission on 21st Century Colleges and Universities

Then Lieutenant Governor Perry charged his Special Commission on 21st Century Colleges and Universities, made up of 15 Texas members representing business and industry, academe, the Texas Legislature and other areas of state government, and community leaders, with studying "issues related to institutions of higher education and their role in contributing to the human capital needed for the State of Texas to be a leader in the new economy of the 21st century."

The Commission report, titled *Moving Every Texan Forward*, provides short-term and long-term recommendations. Over the short term, the Commission

- Recommends at least doubling the amount of funding to the TEXAS Grant program
- Recommends the development of a seamless educational system (Pre-K through graduate school) that eases the transition from one level to the next
- Recognizes that excellence in education in Texas is a prerequisite for the state to realize its hopes of leadership in the United States
- Recommends the reduction or elimination of excessive regulations and bureaucratic controls in order to improve the ability of higher education institutions to be flexible enough to respond to the changes in this state as well as to national and global competition in higher education
- Acknowledges that the future of capital construction for higher education presents "peculiar challenges"
- Endorses the work of the Texas Higher Education Coordinating Board in developing the Texas higher education plan, *Closing the Gaps*

Long-term recommendations, as well as the Commission's full report, are accessible electronically on the Governor's web site at www.governor.state.tx.us.

➡ Coordinating Board Adopts New Plan for Higher Education

The state's continuing economic prosperity, as well as its improving quality of life, depends on the state taking steps to provide high-quality higher education to all of its people and to improve its higher education research efforts. However, the proportion of Texans enrolled in higher education has declined over recent years. Also, too few higher education programs are noted for excellence, and too few higher education research efforts have reached their potential.

If these trends continue, Texas will have an unskilled, under-educated population that cannot meet the demands of a technology-based workplace. The state will lose ground in the highly competitive global marketplace. There will be more public spending on prisons, on welfare, and on Medicaid.

Closing the higher education gaps between Texas and other states, as well as within Texas, is the focus of a new Higher Education Plan for Texas adopted by the Texas Higher Education Coordinating Board in October 2000.

The *Closing the Gaps, By 2015* plan establishes four goals – to close the gaps in student participation, student success, quality academic programs, and research efforts – and offers strategies to reach those goals.

The Coordinating Board believes that efforts to reach these goals will do more than anything else over the next 15 years to improve higher education in Texas, and extend the benefits of higher education to all of the people of the state. This new plan, designed to provide only a few, easily measurable goals, encourages creativity and allows flexibility among the state's

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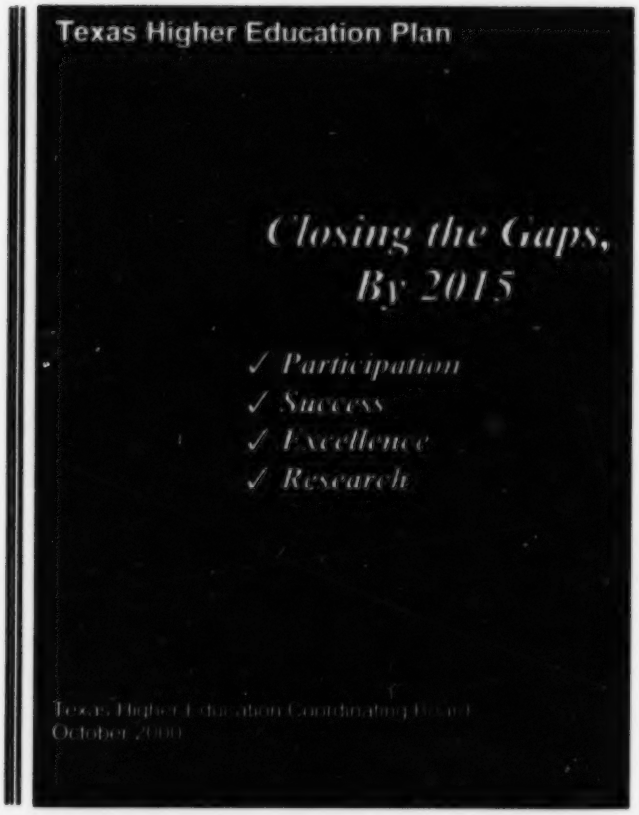

diverse higher education institutions.

Successful implementation, however, will require the support and work of the state's colleges and universities, the business community, civic organizations, parents, students, the Texas Legislature, and our partners in public elementary and secondary education. All will have roles to play.

A Planning Committee made up of Coordinating Board members, business and community leaders, and former higher education governing board members appointed by the Coordinating Board chair developed the new plan. Four additional task forces that explored key issues in greater depth supported the Planning Committee. Also, a higher education priority and efficiency analysis conducted by the RAND Corporation provided additional information.

The plan's four goals, with associated strategies, include *Closing the Gaps in:*

✓ Participation

By 2015, close the gaps in participation rates across Texas to add 500,000 more students.

- Make the Recommended High School Program (college-preparatory courses) the standard curriculum in Texas public high schools, and require it for admission to Texas public universities by 2008.
- Recruit, prepare, and retain additional well-qualified educators for elementary and secondary schools.
- Ensure that all students and parents understand the benefits of higher education and the steps needed to prepare academically and financially for college.
- Establish a college affordability policy that ensures students are able to participate and succeed in higher education regardless of their ability to pay, by providing grants and scholarships to cover tuition, fees, and books for every student with financial need; setting tuition and fees in a manner that closes the gaps in participation and success; and establishing incentives that increase affordability through academic and administrative efficiencies in the higher education system.

✓ Success

By 2015, increase by 50 percent the number of degrees, certificates, and other identifiable student successes from high quality programs.

- Focus college and university efforts on increasing graduates in education, engineering, computer science, math, physical science, allied health, nursing, and other critical fields.
- Carry out the state's Uniform Recruitment and Retention Strategy and other efforts aimed at making college and university enrollment and graduation reflect the population of Texas.
- Fund colleges and universities to reward increases in retention and graduation from high-quality programs.
- Create incentives and requirements for seamless student transitions among high schools, community and technical colleges, universities, and health-related institutions.
- Make partnerships and collaborations between the business community and higher education institutions a part of the culture of these organizations.

✓ Excellence

By 2015, substantially increase the number of nationally recognized programs or services at colleges and universities in Texas.

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- Establish ladders of excellence for different types of institutions by requiring each public college and university to identify one or more programs or services to improve to a level of nationally recognized excellence and prepare a strategic plan to accomplish this goal. In addition, identify peer institutions for each public institution and establish excellence benchmarks.
- Fund competitive grants to community and technical colleges and universities to match business contributions for acquiring equipment and software and maintaining high-tech instructional laboratories.

✓ *Research*

By 2015, increase the level of federal science and engineering research funding to Texas institutions by 50 percent to $1.3 billion.

- Permit universities, like health science centers, to retain all overhead income from grants and contracts.
- Establish the Texas Science and Engineering Collaborative to expand research in focused areas through collaboration among institutions.
- Increase funding for the Advanced Research Program and Advanced Technology Program.
- Establish a competitive grant program to expand research and research capacity at developing research universities in current and projected major urban areas and at other universities with substantial research programs.

In addition, the plan calls for developing benchmarks and measures to assess progress toward goals of the plan by each institution and by the state's higher education community.